REMARKS

Claims 3, 11, 12, 13, 14, 17, 18, 19, 20, 22, 28, 29, 30, 31, 32, 33, 34, 35, 36, 44, 45, 46, 47, 48, 49, 50, and 51 have been cancelled. Claims 4, 23, 37-39 and 40-43 have been amended. New claims 52-59 have been added. Claims 1-2, 4-10, 15-16, 21, 23-27, 37-43, and 52-59 are now pending in the application. No new matter has been added by amendment. Reexamination and reconsideration of the claims as amended are respectfully requested.

REJECTIONS UNDER 37 C.F.R. 1.130(b)-DOUBLE PATENTING

8.) The Examiner rejects claims 14, 17, 33, 36, 41, 43, 45, and 46 under the "doctrine of obviousness-type double patenting as being unpatentable over claims 1-27 of U.S. Patent No. 6,188,001". Examiner states that "The instantly claimed plants that are derived from crosses and breeding programs are not patentably distinct from the patented plants that are derived from crosses and breeding programs involving PH1W0, as they can express traits that are also expressed by the patented plants." Applicants have cancelled claims 14, 17, 33, 36, 45, and 46. Applicants have amended claims 41 and 43. Such claims are not anticipated by nor rendered obvious by U.S. Patent No. 6,188,001. Both claim 41 and 43 require the use of Applicants' newly developed variety, PH3PG. U.S. Patent No. 6,188,001 does not teach PH3PG or the use of PH3PG in breeding.

REJECTIONS UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

9.) Examiner rejects claims 3, 5, 14, 22, 33, 40-46, 50 and 51 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner rejects claims 3, 22, 50 and 51. The claims have been cancelled and new claims 52, 53, 56, and 57 which are in product-by-process form have been added.

The Examiner rejects claims 5 and 24 for improper antecedent basis. Claims 4 and 23 have been amended thus providing proper antecedent basis.

The Examiner rejects claim 40 and states that "the claim is indefinite because the recitation "comprising" in line 1 does not clearly indicate how many crosses are to be performed by the method." Applicants have amended claim 40. The method now refers to the "first generation PH3PG-derived hybrid".

REJECTIONS UNDER 35 USC § 112, FIRST PARAGRAPH

10.) The Examiner rejects claims 9-20, 28-49 under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The Applicants traverse the rejection. Claims 11, 12, 13, 14, 17, 18, 19, 20, 28, 29, 30, 31, 32, 33, 34, 35, 36, 44, 45, 46, 47, 48, 49, 50, and 51 have been cancelled. Claims 37-39 and 40-43 have been amended. New claims 52-59 have been added.

The Examiner rejects claims to transgenic PH3PG plants and PH3PG plants comprising single gene conversions. New claims 52, 53, 56 and 57 are drawn to methods, while depending claims 53 and 57 are drawn to the products produced by those methods. The claims include the well known methods of producing backcross and transgenic conversion plants. The product by process claims are further limited by specified conversion or transgenic traits, which include the traits of insect resistance, herbicide resistance, disease resistance, and male sterility.

Applicants respectfully point out that examples of transgenes, genes, and traits that can be backcrossed into the PH3PG are given in the application on page 20, lines 16-34, and also on page 22, line 20, through page 33, line 4. On page 8 of the office action the Examiner suggests that the claims be amended to include a list of transgenes. In order to expedite prosecution new claims 53 and 57 list the type of traits that may be conferred by backcross conversions and transgenes. Claim 53 also specifies that PH3PG is used at least twice as a recurrent parent in the development of a backcross conversion plant. Breeders, by using molecular markers, may obtain up to 98% genome identity between the

backcross conversion and the recurrent parent after two backcrosses. See Marker-assisted Selection in Backcross Breeding, Openshaw, S.J. et al. Marker-assisted selection in backcross breeding. In: Proceedings Symposium of the Analysis of Molecular Data, August 1994, pp. 41-43. Crop Science Society of America, Corvallis, OR (1994) included as Appendix A. Inbred PH3PG transformed to comprise a transgene is also easily identifiable through the use of molecular markers. The transgenic version of PH3PG would have the same molecular profile as PH3PG, with the possible exception of a marker used in the profile that is located at the site of transgene insertion. However, in this case, the plethora of other identical markers would identify the line as a transgenic variant of PH3PG.

In the specification on page 4, lines 7-13, it states, "Backcrossing can be used to transfer a specific desirable trait from one inbred or source to an inbred that lacks that trait. This can be accomplished, for example, by first crossing a superior inbred (recurrent parent) to a donor inbred (non-recurrent parent), that carries the appropriate gene(s) for the trait in question. The progeny of this cross is then mated back to the superior recurrent parent followed by selection in the resultant progeny for the desired trait to be transferred from the non-recurrent parent." The method of backcrossing genes into an inbred maize plant is well known and well understood to one of ordinary skill in the art. The method has been successfully used since the 1950's (see pages 585-586 of Wych, 1988 included in the Information Disclosure Statement). In the specification, on page 20, lines 16-34, there is a description of how to backcross traits into PH3PG, which includes the claimed traits. Examples of how one of ordinary skill in the art can transfer a gene conferring a qualitative trait into a variety through backcrossing is demonstrated by the fact that the commercial market now distributes a multitude of products produced in this manner. Such conversion lines are easily developed without undue experimentation. Poehlman et al. (1995) on page 334, submitted in the information disclosure statement, states that, "A backcross-derived inbred line fits into the same hybrid combination as the recurrent parent inbred line and contributes the effect of the additional gene

added through the backcross." Wych (1988) on page 585-86, also submitted in the information disclosure statement, discusses how the male sterility trait is routinely backcrossed into an inbred line and how this is used to produce a sterile/fertile blend of an F1 hybrid in order to reduce seed production costs. In fact, many commercial products are produced in this manner, and those of ordinary skill in the art consider the F1 hybrid produced with the male sterile (backcross conversion) inbred to be the same variety as the F1 hybrid produced with the non-backcross conversion inbred.

Applicants point out to the Examiner that, at the present time, it is not typical that a transgene be incorporated into each newly developed line, such as PH3PG, by direct transformation. Rather, the more typical method used by breeders of ordinary skill in the art is to incorporate the transgene into a new line by taking an already transformed plant line and using it as a donor line to produce a backcross conversion. Thus, the well established method of backcrossing has been used and is the most common means of introgresing the claimed traits into new material.

As a result of the repeated use of the recurrent parent, the backcross conversion has many genetic alleles in common with the recurrent parent. Thus, genetic analysis may be used as a means of identifying the backcross conversion. The F1 hybrid made with a transgenic version or a backcross conversion of PH3PG is also identifiable by the use of genetic markers, because the hybrid would contain one set of alleles from each parent.

The Examiner rejects claims 9, 10, 28, and 29, that claim the F1 hybrid seed and F1 hybrid plant made with PH3PG as a parent. Applicants have cancelled claims 28 and 29. Applicants note that a claim to the F1 hybrid made with a deposited inbred was expressly acknowledged without reservation by the United States Supreme Court in *J.E.M. Ag. Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, 60 USPQ 2d 1865,1873 (S.Ct. 2001), when the Supreme Court wrote, "...a utility patent on an inbred plant line protects the line as well as all hybrids produced by crossing that inbred with another plant line." Further, one of ordinary skill in the art would know how to cross PH3PG with another maize

plant. The F1 hybrid seed and plant produced using PH3PG, regardless of the other maize plant used, is identifiable because it will have one set of alleles coming from PH3PG. One of ordinary skill in the art would be able to run a molecular profile on PH3PG and the F1 hybrid and be able to identify the F1 hybrid as being produced from PH3PG. Seed pericarp tissue, which is solely maternal in origin, can be used to discern the maternal or paternal origin of the allele sets if necessary. See page 16 of Poethig, R.S. 1982. Maize, the plant and its parts. In: W.F. Sheridan (Ed.) Maize for Biological Research, University of North Dakota Press, Grand Forks, ND. pp. 9-18, submitted as Appendix B.

As stated in the specification on page 15, lines 1-16, there are many laboratory-based techniques available for the analysis comparison and characterization of plant genotype such as Restriction Length Polymorphisms (RFLPs) and Simple Sequence Repeats (SSRs). Such techniques may be used to identify whether or not PH3PG was used to develop a hybrid. The Applicants also submit to the Examiner the journal article by Berry et al. (2002). This article discusses the probability of identifying the parents of the hybrid by SSR data when neither parent is known and without the use of pericarp analysis. A copy of the article by Berry et al. is attached to this Amendment and Request for Reconsideration as Appendix C. The results of the experiment showed that using 100 SSR loci markers resulted in correct parental ranking of inbreds for 53 out of 54 hybrids. Applicants also point out that any breeder of ordinary skill in the art will know the identity of both parents used to produce a hybrid.

The Examiner rejects claims 14-17. Claims 14 and 17 have been cancelled. Claims 15 and 16 remain pending and are to methods of developing a maize plant through the utilization of PH3PG. Applicants point out that anyone of skill in the art would know how to utilize the well established breeding methods with PH3PG. Description of such occurs throughout the specification and descriptions can also be found in introductory plant breeding books.

The Examiner rejects claims 40-43. Claims 40-43 have been amended. Claim 40 is to the method of producing a first generation PH3PG-derived hybrid maize plant. Applicants point out that this claim is to a method and requests that

this rejection be withdrawn. Claim 41 is to the first generation PH3PG-derived hybrid maize plant produced by the method of claim 40. The first generation hybrid, or F1 hybrid, is identifiable through both breeding records and molecular marker techniques as discussed above. Claim 42 is to the method of selfing the first generation hybrid PH3PG for successive filial generations. This is a basic and well known breeding methodology, and the use of this methodology with PH3PG is described in the specification on page 20, lines 1 to 15. Claim 43 is to plants derived from claim 42 that have at least 50% of their genetics derived from PH3PG. These claimed plants are clearly described by their method of production, which requires the use of PH3PG. Such plants must be produced through the use of PH3PG and the Examiner acknowledges that PH3PG is clearly identified. Further, Applicants have added the limitation of at least 50% inheritance from the PH3PG side of its pedigree to further emphasize the significant influence of PH3PG in the claimed product. Genetic inheritance has been accepted by both courts and governmental agencies as an accurate and reliable means of identification. In paternity cases courts routinely compel genetic testing of putative fathers to establish paternity, and federal law mandates that states have laws requiring that genetic test results be admissible in such cases without the necessity for foundation testimony or other proof. 42 U.S.C. 666(a)(5)(F)(iii)(Supp. V 1999). In such cases, a child will, on average, inherit 50% genetic contribution from each parent. Similarly, the plants produced by the method of claim 42 will also, on average, inherit 50% genetic contribution from each parent.

Applicants request that the Examiner examine the sufficiency of description of claim 43 with all of its claim limitations, including the limitation that the progeny be produced by the method of claim 42, with the use of PH3PG and retaining at least 50% genetic contribution from PH3PG. One of ordinary skill in the art would know how to cross PH3PG to develop an F1 hybrid and also how to self plants derived from the cross with PH3PG. In *Ex parte Parks*, 30 USPQ 2d 1234 (B.P.A.I. 1994), the Board of Appeals stated, "Adequate description under the first paragraph of 35 U.S.C. 112 does not require *literal* support for the

claimed invention. Rather, it is sufficient if the originally-filed disclosure would have conveyed to one having ordinary skill in the art that an appellant had possession of the concept of what is claimed." Emphasis added. In *J.E.M. Ag. Supply*, the Supreme Court also acknowledged the value of a newly developed line in further breeding, when it stated that, "...a breeder can use a plant that is protected by PVP certificate to 'develop' a new inbred line while he cannot use a plant patented under §101 for such a purpose." Id. at 1873.

The Examiner states that, "The morphological and physiological traits of the corn plants that are crossed with PH3PG, and with progeny of that cross, are unknown, and the description of progeny and descendents of corn plant PH3PG are unknown. The description of corn plant PH3PG is not indicative of the description of plants and seed produced by the breeding programs and crosses, or any of its descendents." Applicants traverse. The description of a plant developed through the direct, or in the case of backcross conversions, direct and repeated, use of PH3PG is a description of the plant. Characterization of a plant by its parental lines is a means of description used by all breeders of ordinary skill in the art. Breeders of ordinary skill in the art maintain careful and precise pedigree records as a means of characterizing plants. Further, the Applicants written description of PH3PG comprises a deposit of a representative sample of PH3PG. Each claim requires the use of PH3PG. The plant to which PH3PG may be crossed is not claimed. The description of the progeny are claimed in reference to the use of PH3PG in producing such progeny. As described in the specification, lines 1-16 on page 15, the seed deposit allows one of ordinary skill to run a molecular profile of PH3PG. Thus, one of ordinary skill in the art may test material they desire to use in breeding to determine if it is PH3PG. Applicants submit the molecular profile of inbred line PH3PG in the declaration of Dinakar Bhattramakki attached hereto as Appendix D. Further Applicants amend the specification to include such SSR profile. Such SSR profile is not new matter, as it is an inherent feature of inbred line PH3PG, a representative sample of which has been deposited with the ATCC. For example, see Ex parte Marsili, Rosetti, and Pasqualucci, 214 USPQ 904 (1972), in which the Patent and

Trademark Office Board of Appeals held that it was not new matter to amend the structure of a compound when a more refined analytic investigation showed a corrected formula. The Board, relying on well established cases of In re Nathan et al, 51 CCPA 1059, 328 F.2d 1005, 140 USPQ 601 (1964); In re Sulkowski, 487 F.2d 920, 180 USPQ 46 (CCPA 1973); Spero v. Ringold, 54 CCPA 1407, 377 F.2d. 652, 153 USPQ 726 (1967), and Petisi et al. v. Rennhard et al., 53 CCPA 1452, 363 F. 2d 903, 150 USPQ 669 (1966), concluded that the "products described, exemplified and claimed by Appellants inherently had and have now the structure given in the amendment in question. Consequently, the changes made in this amendment do not constitute new matter. Marsili at 906. Similarly, in the present case, inbred line PH3PG inherently had and still has the SSR marker profile being added. As described previously, one of ordinary skill in the art can use molecular markers to identify PH3PG, a transgenic version of PH3PG, a backcross conversion of PH3PG and the F1 plant of the transgenic version and backcross conversion of PH3PG.

The Applicants would also like to point out that the specification also identifies PH3PG with phenotypic descriptions. Various examples of breeding methods, transgenes, transformation procedures, and F1 hybrid production are given in the specification. The mean values of traits for numerous F1 plants, wherein PH3PG is the parent and other numerous maize plants are the second parent, are given in Table 3 page 41. Tables 4A-4B contain mean values of traits to a specific F1 wherein PH3PG is a parent.

The Examiner states, "Given the breadth of the claims encompassing corn plants expressing at least two traits that are also expressed by PH3PG, or any trait, and descendents of PH3PG, and the lack of guidance of the specification... the specification fails to provide an adequate written description of the multitude of corn plants and their parts encompassed by the claims." Applicants point out that the claims do not encompass "corn plants expressing at least two traits that are also expressed by PH3PG, or any trait". Applicants point out that those claims referenced by the Examiner require the utilization of PH3PG to develop such plant. In order to expedite prosecution the claims identifying traits have

been cancelled. The test of written description does not require a morphological and physiological description. Rather, it is whether subject matter was described in such a way to convey to one of ordinary skill in the art that the inventor had possession of the claimed invention. While PVP is distinct from patents, the scope of protection conferred by PVP provides a clear indication that breeders of ordinary skill in the art consider mutations, F1 hybrids, backcross conversions and transgenic conversions to be within the scope of the invention of the variety itself. See Appendix E. These derivatives, variants and closely related progeny easily and routinely created through the use of this newly developed line are encompassed within the scope of the invention of the variety itself. The fact that the progeny have not been created does not prevent them from being protected in this manner. As stated in MPEP 2163 (3) (a), "An invention may be complete and ready for patenting before it has actually been reduced to practice."

In Enzo vs. Gen-Probe, U.S. State Court of Appeals for the Federal Circuit, 63 USPQ 2d 1609, the court reversed its prior decision regarding the insufficiency of the deposited genetic probes to meet the written description requirement. In so holding, the court stated, " As the deposited sequences are about 850, 8500, and 1300 nucleotides long, ..., there are at least hundreds of subsequences of the deposited sequences, an unknown number of which might also meet the claimed hybridization ratio. Moreover, Enzo's expert, Dr. Wetmur, stated that 'astronomical' numbers of mutated variations of the deposited sequence also fall within the scope of those claims, and that such broad claim scope is necessary to adequately protect Enzo's invention from copyists who could otherwise make minor change to the sequence and thereby avoid infringement while still exploiting the benefits of Enzo's invention. The defendants assert that such breadth is fatal to the adequacy of the written description. On the other hand, because the deposited sequences are described by virtue of a reference to their having been deposited, it may well be that various subsequences, mutations, and mixtures of those sequences are also described to one of skill in the art. We regard that question as an issue of fact...."

The issue of whether the progeny as now claimed satisfies the written description requirement is also an issue of fact. PH3PG is a unique inbred, as evidenced by the morphological and physiological traits given in Table 1, pages 17-19, of the application. Routinely used molecular techniques, discussed on page 15, lines 1-16 of the application, can be used to identify PH3PG and to verify whether PH3PG is within the pedigree of a claimed plant. One of ordinary skill in the art would also know from breeding records if PH3PG were utilized in the development of a claimed plant.

As stated in the written description guidelines "an applicant shows possession of the claimed invention by describing the claimed invention with all its limitations using such descriptive means as words, structures, figures, diagrams, and formulas that fully set forth the claimed invention. Possession may be shown in a variety of ways, including...by describing distinguishing identifying characteristics sufficient to show that the applicant was in possession of the claimed invention." 1255 Official Gazette 140 (Feb. 5, 2002). Phenotypic traits are used in the text of the specification. Genetic and other molecular profiles may be obtained from the deposit. Once a line is identified as being PH3PG, one of ordinary skill in the art would also easily be able to determine which progeny they develop from that line fall within the scope of the claims.

Within the plant breeding arts breeders use pedigree as a means to characterize lines in reference to their progenitors. It is unambiguous and easily traceable through breeding records that are maintained by any breeder of ordinary skill in the art. It indicates that a line fewer crosses away from a starting line will be, as a whole, more highly related to the starting line. Thus, the work of the original breeder in developing the starting line will be retained in the closely related progeny. More specifically, traits and linkage groups present in PH3PG will be retained in progeny that are within one breeding cross of PH3PG. Applicants submit that characterization of the progeny of PH3PG by virtue of their filial relationship is a clear and acceptable means of identification. Not only are filial descriptions used by breeders to evaluate materials for use in their breeding programs, but it is standard practice within the plant breeding industry for

universities and companies that license inbred maize lines to retain a royalty from lines developed through the use of their inbreds. Those royalties are, in almost all cases, based on the filial relationship between the licensed inbred used in breeding and the progeny line commercialized. This is further evidence that those of ordinary skill in the art of plant breeding describe progeny in terms of pedigree and find it an acceptable means of characterization.

As noted in the specification, the development of an inbred line is a time consuming and labor intensive activity. On average, between 10,000 to 20,000 lines are created and screened in order to develop any maize inbred line for which the Applicants file a patent application. Once developed, the inbred line is useful for two purposes: (1) to make commercial hybrids, and (2) as a source of breeding material for the development of new inbreds that retain the original inbred's desired characteristics. A breeder desiring to make a line with similar traits to PH3PG would be greatly advantaged by being able to use PH3PG as starting material. This is because the linked genes arranged through Applicants' breeding efforts, and fixed in PH3PG, can be maintained in the progeny of PH3PG by a breeder of ordinary skill in the art. The end result is the development of an inbred line with substantial benefit from the Applicants' work.

PH3PG-derived progeny are described by the fact that PH3PG is utilized in a breeding program to make the PH3PG-derived progeny, PH3PG gives genetic contribution to the PH3PG-derived progeny, and the genetics of PH3PG are described by ATCC deposit of PH3PG seed. By limiting the progeny to one breeding cross away from PH3PG and by limiting the progeny to those that contain at least 50% of their genetics from PH3PG, the Examiner's concern that the breadth of claims is not adequately described is addressed .

Applicants would also like to emphasize that PH3PG cannot be derived through any other means than through PH3PG seed and plant, nor can the influence of PH3PG on the progeny be removed from a line within one breeding cross of PH3PG. To view this claim as one of breadth ignores an essential limitation of the claim; that only a plant developed through the use of PH3PG is within the scope of the claim. Such a plant could not be obtained without the use

of PH3PG, so the claim would not in any way restrict the work of a breeder that did not in fact use PH3PG. Compliance with the written description requirement is essentially a fact based inquiry that will "necessarily vary depending on the nature of the invention claimed." Vas-Cath v. Mahurkar, 935 F. 2d 1555 (citing In re DiLeone, 436 F2d. 1404, 1405). Thus, the compliance with the written description requirement must be judged in view of this limited scope of the progeny claims. As amended, the claims are drawn to only a limited scope of progeny, progeny whose existence is the direct result of the use of PH3PG. This is in harmony with the statement in section 2163 of the MPEP that "the written description requirement promotes the progress of the useful arts by ensuring inventions are adequately described in the specification in exchange for the right to exclude." That quid pro quo of patent law has been met by the Applicants in the present case, and to use written description to deny adequate patent protection is contrary to the stated purpose of the written description requirement.

The Examiner also rejects claims 37-39 under 35 USC § 112, first paragraph. Claims 37-39 have been amended for clarification purposes. Claims 37-39 are directed to growing out an F1 hybrid in which PH3PG is a parent and searching for PH3PG inbred seed. Due to the imperfect process of seed production parent seed can sometimes be contained in the hybrid seed bag. This claim covers the method of searching for inbred PH3PG seed within a bag of hybrid seed. The method is clearly described in the specification on page 5, line 21 through line 7 on page 6. One of ordinary skill in the art can practice such a method without undue experimentation. The Applicants request that the Examiner withdraw his rejection to claims 37-39.

REJECTIONS UNDER 35 U.S.C. § 112, FIRST PARAGRAPH

11.) The Examiner rejects claims 18-20 and 47-49 under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicants traverse the rejection.

Claims 18-20 and 47-49 have been cancelled and new claims 52-54 have been added. The Examiner states, "The specification teaches that single gene conversions, or introgression, of the disclosed maize plant through traditional breeding is contemplated (page 20, lines 16-31). However, the specification does not teach any PH3PG plants comprising single gene conversions. It is not clear that single genes may be introgressed into the genetic background of a plant through traditional breeding."

The Examiner has cited Hunsperger, Kraft, and Eshed and stated that they "teach that it is unpredictable whether the gene or genes responsible for conferring a phenotype in one plant genotypic background may be introgressed into the genetic background of a different plant, to confer a desired phenotype in said different plant." The Examiner states that, "Hunsperger et al. teach that the introgession of a gene in one genetic background in any plant of the same species, as performed by sexual hybridization, is unpredictable in producing a single gene conversion plant with a desired trait (column 3, lines 26-46). " Applicants' respectfully disagree that this is what is taught by Hunsperger et al. Hunsperger et al. teaches that a gene that results in dwarfism of a petunia plant can be incorporated into other genetic backgrounds of the petunia species (See column 2, line 67 to column 3, lines 1-4). Hunsperger et al. merely discusses that the level of the expression of that gene differed in petunia plants of different genetic backgrounds. Hunsperger et al. succeeded in incorporating the gene into petunia plants of different genetic backgrounds. Therefore, Hunsperger et al. support the fact that one can introgress a specific trait into a recurrent parent through backcross conversion. Applicants' specification provides ample disclosure of starting materials such as maize inbred PH3PG, a discussion of traditional breeding methods, and examples of transgenes and naturally occurring genes that may be used in such methods. Hallauer et al. (1988) on page 472, submitted in the information disclosure statement, state that, "For single gene traits that are relatively easy to classify, the backcross method is effective and relatively easy to manage." The teaching of Hallauer relates

specifically to corn breeding and corn inbred line development, while Hunsperger et al relates to petunia.

The Examiner goes on to state that, "Kraft et al. teach that linkage disequilibrium effects and linkage drag prevent the making of plants comprising a single gene conversion, and that such effects are unpredictably genotypic specific and loci-dependent in nature (page 323, column 1, lines 7-15)." Applicants disagree that the article states such points. Kraft et al. make no mention of a plant comprising a single gene conversion. Further, Kraft et al. relates to linkage disequilibrium and fingerprinting in sugar beet, a crop other than maize. Kraft et al. state, on p. 326, first column, "The generality of our results for other crop species needs to be investigated."

It is understood by those of skill in the art that backcross conversions are routinely produced and do not represent a substantial change to a variety. The World Seed Organization, on it's web site, writes, "The concept of an essentially derived variety was introduced into the 1991 Act of the UPOV Convention in order to avoid plagiarism through mutation, multiple back-crossing and to fill the gap between Plant Breeder's Rights and patents." As determined by the UPOV Convention, essentially derived varieties may be obtained for example by the selection of a natural or induced mutant, or of a somaclonal variant, the selection of a variant individual from plants of the initial variety, backcrossing, or transformation by genetic engineering. The commercialization of an essentially derived variety needs the authorization of the owner on the rights vested in the initial variety." International Convention for the Protection of New Varieties of Plants, as amended on March 19, 1991, Chapter V, Article 14, Section 5(c), (emphasis added). A copy of the relevant portion of the UPOV Convention and the World Seed Organization web site is attached as Appendix E.

An example of how one of ordinary skill in the art can transfer a gene conferring a qualitative trait into a variety through backcrossing is demonstrated by the fact that the commercial market now distributes a multitude of products produced in this manner. Such conversion lines are easily developed without undue experimentation. Poehlman et al. (1995) on page 334, submitted in the

information disclosure statement, states that, "A backcross-derived inbred line fits into the same hybrid combination as the recurrent parent inbred line and contributes the effect of the additional gene added through the backcross."

The Examiner goes on to state that, "Eshed et al. teach that in plants, epistatic genetic interactions from the various genetic components comprising contributions from different genomes may affect quantitative traits in genetically complex and less than additive fashion (page 1815, column 1, line 1 to page 1816, column 1, line 1). The Applicants would like to point out on page 1816, column 1, lines 1-5 of the Eshed et al. article it states, "Recent studies that detected epistasis of selected QTL in Drosophila (Long et al. 1995), soybean (Lark et al.1995) and maize (Doebley et al.1995; Cockerham and Zeng 1996) did not show a less-than-additive trend." Emphasis added. Applicants also add that transferring a qualitative trait does not require undue experimentation. Please note Hallauer et al. (1988) on page 472, submitted in the information disclosure statement, which states, "For single gene traits that are relatively easy to classify, the backcross method is effective and relatively easy to manage." Claim 53 has been amended to expedite prosecution. In claim 53, the genes transferred into PH3PG are now limited to the traits of herbicide resistance, insect resistance, disease resistance, male sterility, and waxy starch.

In light of the amendments to the claims and the foregoing arguments the Applicants request reconsideration of the rejection under the first paragraph of 35 U.S.C. 112.

REJECTIONS UNDER 35 U.S.C. § 102 and 103

12.) The Examiner states that, "Claims 14, 17, 33, 36, 41, 43, 45, and 46 remain rejected under 35 U.S.C. 102(e) as anticipated by or in the alternative, under 35 U.S.C. 103(a) as obvious over Piper (U.S. Patent No. 6,188,001). " Applicants traverse the rejection.

Applicants have cancelled claims 14, 17, 33, 36, 45, and 46. Applicants have amended claims 41 and 43. Claim 41 is to the first generation hybrid

developed from crossing PH3PG with a second plant. Claim 43 is limited to progeny produced by the method of claim 42, which requires the use of PH3PG, and is further limited to progeny deriving at least 50% genetic contribution from PH3PG.

The Examiner states that, "The claims do not exclude plants that have non-PH3PG plants in its ancestry." Applicants point out that the claims refer to positive features. In this case, the positive features of PH3PG and its use clearly define the claim. PH1W0 is not PH3PG, nor was PH1W0 created through the use of PH3PG. Thus, claims 41 and 43 are not anticipated by PH1W0. As evidenced by the declaration of Stephen Smith submitted as Appendix F, both PH3PG and its progeny within the scope of claims 41 and 43 are distinct from PH1W0 taught in U.S. Patent No. 6,188,001.

In light of the above, Applicants respectfully request that the Examiner reconsider and withdraw the rejection to claims 41 and 43 under 35 U.S.C. 102 (b) and 103(a).

Claims 1-2, 4-10, 15-16, 21, 23-27, 37-43, and 52-59 are now pending in the application. The amendments made herein do not in any way change the claim scope which the Applicants believe is allowable but is meant to hasten the issuance of the patent.

CONCLUSION

Applicants submit that in light of the foregoing amendments and the remarks, the claims 1-2, 4-10, 15-16, 21, 23-27, 37-43, and 52-59 requested. If it is felt that it would aid in prosecution, the Examiner is invited to contact the undersigned at the number indicated to discuss any outstanding issues.

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